



California Environmental Protection Agency

AIR RESOURCES BOARD

AIR QUALITY SURVEILLANCE BRANCH

STANDARD OPERATING PROCEDURES

FOR

XONTECH 924 TOXICS AIR SAMPLER

AQSB SOP 801

First Edition

MONITORING AND LABORATORY DIVISION

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Approval of Standard Operating Procedures (SOP)

Title: Xontech 924 Toxics Air Sampler

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Section: Operation Support Section

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1.0 GENERAL INFORMATION

1.1 Introduction:

The purpose of these Standard Operating Procedures (SOP) is to supplement the manufacturer's operator's manual for the Xontech 924 Toxics Air Sampler by documenting procedures that have been implemented by the Air Quality Surveillance Branch (AQSB) of the Air Resources Board. These procedures are designed to formalize installation, configuration and operational procedures for Xontech 924 samplers.

This SOP describes all supplemental information or modifications to the sampler necessary to integrate it into the AQSB's ambient air monitoring network. As this document is supplemental to the operator's manual provided by the manufacturer, the AQSB requires operators to thoroughly review the Xontech 924 operator's manual.

1.2 Principle of Operation:

The Xontech Model 924 Toxic Air Sampler is designed for the unattended collection of ambient air samples on a variety of filter materials and solid sorbent tubes for laboratory analysis of collected compounds. The sampler is modular in design such that four individually controlled sampling channels can be readily installed. Of these available channels, Channel One is designated for Aldehydes, Channel Two is designated for Total Metals and Channel Three is designated for Hexavalent Chromium (CrVI).

Sampling schedules are entered through the front panel keypad or from a remote computer via built-in modem. A "Reschedule" function allows a sampling schedule to be repeated at a later date without re-entering the schedule information.

System parameters, control settings, schedule and sampling reports may be displayed on the front panel display or on a remote computer. At the end of the sampling period, a report is automatically printed which includes the calculated volume of air that passed through the sampling device.

The Control Module is the main system assembly. Removable legs elevate the Control Module about 28 inches above ground level. The Pump Box sits below the Control Module on the Leg Assembly shelves. The vacuum pump has the capacity for simultaneous operation of four 30-LPM sampling channels. The sampling inlet height is 2 meters above the mounting surface.

The Sampling Assembly is mast mounted to the rear of the Control Module and provides a weather shielded mounting rack for the Slider Valve Modules. Individual sampling modules provide mounting for the filter and/or tube holders. All electrical and pneumatic connections are made at the rear of the Control Module. When fully assembled with the mast in the raised position, the system has an overall height of about seven feet, requires a four-foot square mounting area and weighs about 180 pounds.

The Pump Box contains the Gast Model 1023 rotary vane vacuum pump and two cooling fans. The pump and fans are controlled by the computer and actuated by a Solid State Relay (mounted in the Control Module on the distribution assembly). The vacuum pump provides adequate capacity for simultaneous operation of four 30-LPM sampling channels while maintaining a vacuum greater than 25 inch Hg.



Figure 1.1 Xontech 924

1.3 Safety Precautions:

Think safety first. High voltages (120 volts AC) are used to power the unit. Watch where and how you place your hands in the sampler. Unplug the sampler whenever possible while working around electrical components. Working outdoors in ambient (wet) weather conditions increases the risk of electrocution.

Rooftop sampling creates a hazard of falling. Be careful climbing and descending to and from the rooftop platform.

1.4 Interferences/Limitations:

The standard flow rate for Total Metals and Chrome Six is 12 LPM. For stations that experience low flow errors due to significant filter loading during periods of high condensing moisture, it is advisable to set the flows of the high flow channels to 10 LPM.

2.0 INSTALLATION PROCEDURE

2.1 Physical Inspection:

Inspect equipment and accessories for completeness and check for any shipping damage upon receipt of a Xontech 924 sampler. If equipment is missing or damage is found, immediately notify your supervisor and/or your agency's shipping department.

2.2 Tools Required for Installation :

#3 Phillips Screwdriver
9/16" Open-End Wrench
11/16" Open-End Wrench
1" Open-End Wrench

2.3 Siting:

Siting of the Xontech 924 will be dictated by the type of ambient monitoring to be accomplished. In general, siting should conform to the PM_{2.5} siting guidelines stated in Title 40 Code of Regulations part 58, Appendix E, paragraph 8.

Ensure the sampler inlet is in an area of unobstructed airflow and has at least 2 meters separation from other rooftop instruments. For collocated samplers, the sampler inlets shall be no less than 1 meter apart and no more than 4 meters apart.

3.0 CONFIGURATION

3.1 Introduction:

This section details the steps required for pre-sampling configuration, programming a sample run and using the reschedule menu.

3.2 Pre-Sampling Configuration:

1. Turn on the front panel power switch. The display will flash the manufacturer's name, equipment model number and the system ROM version number.
2. Press **SELECT**, the date will be underlined. If the date is correct as shown, press \Rightarrow , otherwise press **SELECT**, the date will begin flashing. Enter the correct date (MM/DD/YY), then press **EXIT**.
3. The time will be underlined. If the time is correct as shown, press \Rightarrow , otherwise press **SELECT**. The time will begin flashing. Enter the correct time (hh:mm) then press **EXIT**. (ARB policy is to use Pacific Standard Time)
4. **RESET TO DEFAULT? N** (Normally **No** would be the correct response. A **Yes** response will clear and reset all schedules and functions to their default value). To reset, press **SELECT**, the '**N**' will begin flashing. Press \Rightarrow to change the '**N**' to a '**Y**', then press **EXIT**.
5. **CONTROL ID XXXXXXXX**. This is the AIRS station number that will be printed on the reports. If it is correct, press \Rightarrow . If not then press **SELECT**, the number will begin flashing. Enter the correct number and press **EXIT**.
6. **PRINT FULL RPT? N** (This causes a report of all settings, schedule and completed runs to be printed.) If you don't want a full report printed, press \Rightarrow . Otherwise, press **SELECT**, the '**N**' will begin flashing. Press \Rightarrow to change the '**N**' to '**Y**', then press **EXIT**.
7. **PRINT CTRL RPT? N** (This causes a report of just the settings and schedule to be printed.) If you don't want a control report printed, press \Rightarrow . Otherwise, press **SELECT**, the '**N**' will begin flashing. Press \Rightarrow to change the '**N**' to '**Y**', then press **EXIT**.

3.3 Programming Sample Run:

1. If the system is off, turn on the front panel power switch. The display will flash the manufacturer's name, equipment model number and the system ROM version number.
2. Verify that the DATE, TIME, CONTROL ID and the CALIBRATION MENU information is correct.
3. Press \Rightarrow until the SCHEDULE menu is displayed. Press **SELECT** to select the channel number. (Aldehydes – Ch1, Total Metals – Ch2, CRIV – Ch3) Press **SELECT** again and the channel number will begin to flash. Enter the channel number you wish to program, then press **EXIT**. Each channel to be run must be programmed separately.
4. Press **SELECT** and the START DATE will begin to flash. Enter the start date and press **EXIT**.
5. Press **SELECT** and the START TIME will begin to flash. Enter the start time and press **EXIT**.
6. Press **SELECT** and the DURATION will begin to flash. Enter the DURATION (1 min to 24 hrs.) and press **EXIT**. (Typically 24 hrs.)
7. Press **SELECT** and the FILTER ID (Tracking number for the sample being collected, max eight digits) number will begin to flash. Enter the FILTER ID number and press **EXIT**. (Total Metals and Aldehydes filters are shipped with tracking numbers on the containers. CRIV is not.)
8. Press **SELECT** and CLEAR E-TIME and Avg./Total Flow is displayed. This data is normally cleared in the Elapsed Time Menu after the printout from the last run has been verified and the data recorded on the Monthly Quality Control Maintenance Check Sheet (see appendix A).
9. Press **SELECT** and the GROUP number (This number is used with the re-schedule menu to combine multiple channels into one group for simultaneous scheduling) will begin to flash. Press **EXIT** to accept the default, GROUP 1.
10. After the Group number is specified, the display returns to the beginning of the SCHEDULE Menu for the next channel.
11. Press **EXIT** to leave the SCHEDULE menu. Press \Leftarrow until you come to the FLOW menu.

12. Press **SELECT**. Press \Rightarrow until the channel you wish to program is underlined.
Press **SELECT** and the channel flow will begin to flash. Enter the desired flow and press **EXIT**.

When all flows have been entered, press **EXIT** to leave the FLOW menu.

3.4 Reschedule Menu:

Once the SCHEDULE and FLOW Menus have been set and a run completed, the RESCHEDULE Menu can be used to set up the next run.

1. Press \Rightarrow until RE-SCHEDULE appears on the display.
2. Press \Rightarrow until DAYS LATER is underlined, then press **SELECT**. GROUP number will appear.
3. Press **SELECT**. Group Number will flash.
4. Press \Rightarrow until GROUP Number 1 is displayed. Press **EXIT**.
5. Press \Rightarrow until the number for DAYS LATER is underlined.
6. Press **SELECT**. The number will flash. Enter 12. Press **EXIT**. N will be underlined for GO.
7. Press **SELECT**. The N will flash. Press \Rightarrow until Y is displayed. Press **EXIT**.
8. Enter the filter ID for channel 1. Press **EXIT**.
9. CLEAR E-TIME and Avg./Total Flow is displayed. If the data from the previous run has been deleted, press **EXIT**. Otherwise, \Rightarrow to the N, press **SELECT**, \Rightarrow to Y and press **EXIT**.
10. Enter the filter ID for the remaining channels.

4.0 SAMPLE HANDLING AND PREPARATION

Sample media for toxics sampling is prepared and shipped to AQSB ambient air monitoring stations by the ARB's Monitoring and Laboratory Division's Inorganics Laboratory. The filter media and sorbent tubes should be kept in their shipping containers until ready for use.

Prior to sampling, station operators should complete the required on the 24-Hour Field Sample Report (see Appendix C). Include the site name, site AIRS number, technician name, agency, filter and sorbent tube ID#, scheduled sampling date and sampler property number. Take the filter, 24-Hour Field Sample Report, and Monthly Quality Control Maintenance Check Sheet to the field sampling location.

4.1 Filter/Cartridge Handling:

A. Changing Filter Samples

1. Push in on the metal tab of the quick disconnect of the channel to be changed and pull down.
2. Unscrew the bottom of the filter holder being careful not to drop the filter, if one is installed.
3. If present, remove the used filter cassette and place it in it's proper shipping container for return to the lab.
4. Wipe all dirt from the support screen, o-ring, faceplate and rubber gasket.
5. Be sure o-ring and support screen (fine grid side up) are in place and undamaged.
6. Remove the new filter cassette from it's shipping container and place it on the o-ring making sure that it is seated properly with the cassette placed so that the filter is next to the support screen.
7. Ensure that the rubber gasket is in place on top of the cassette and screw it into the holder. Do not over tighten as a torn filter may result.
8. Push in the metal tab on the quick disconnect and slide it onto the filter holder.
9. Record the filter number on the filter box or shipment envelope and toxics log sheet.

B. Changing Aldehyde Cartridge Samples

1. Push in the metal tab on the quick disconnect tube fitting and pull down.
2. Unscrew the bottom of the filter holder being careful not to drop the filter, if one is installed.
3. If present, remove the used filter cassette and place it in it's proper shipping container for return to the lab.
4. Unscrew two halves of cartridge holder.
5. Remove used Aldehyde cartridge if present, cap the ends with the yellow caps provided and place in the plastic container for shipment to lab.
6. Wipe all dirt from the support screen, o-ring, faceplate and rubber gasket.
7. Remove new Aldehyde cartridge from the plastic container, remove yellow caps and place yellow caps back into the plastic container.
8. Insert Aldehyde cartridge into the bottom half of cartridge holder and place rubber gasket over top end of cartridge.
9. Screw two halves of cartridge holder together until snug.
10. Remove the new filter cassette from it's numbered container and place it on the o-ring making sure that it is seated properly with the cassette placed so that the filter is next to the support screen.
11. Ensure that the rubber gasket is in place on top of the cassette and screw it into the holder. Do not over tighten as a torn filter may result.
12. Push in the metal tab on the quick disconnect and slide it onto the filter holder.

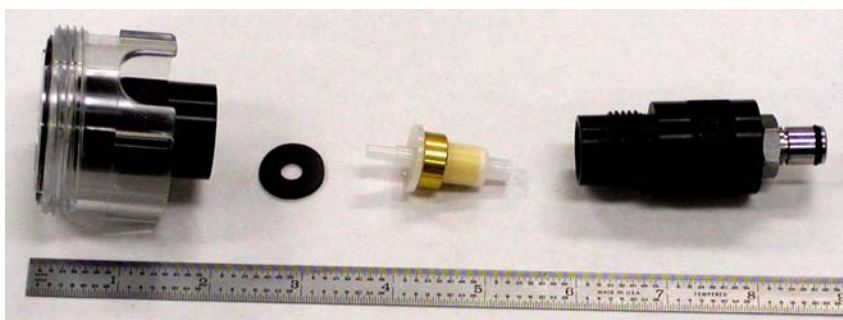


Figure 4.1 Aldehyde Cartridge Holder Assembly

5.0 DATA RETREVIAl

5.1 Introduction:

This section of the SOP covers the data retrieval procedures for the Xontech 924 sampler. This includes QC criteria for sample invalidation and shipping methods.

5.2 General Information:

Field personnel have the primary responsibility for retrieving and recording the sample run information and forwarding this information to the appropriate MLD laboratory. Sampling information is recorded on sample printout and will accompany the sampled media to the laboratory (see figure 5-1 below).

```
STATION ID      #      35305
CH 1, FILTER    #      5
START 13:45,    04/22/03
STOP 13:55,     04/22/03
DURATION        0:11
START FLOW      0.702 Lpm
END FLOW        0.695 Lpm
AVERAGE FLOW    0.701 Lpm
TOTAL VOLUME    8 L
FE 0:00,        PF 8:08
```

Figure 5.1
Sample Run Printout

5.3 Quality Control Criteria for Filter Samples:

Quality control invalidation criteria for filter samples collected by the Xontech Model 924 Toxics Air Sampler are listed below. All samples collected in the field are to be checked using these criteria. If the sample does not meet these criteria, the sample is invalid. The sample filter and Xontech printout should be sent to the laboratory with a clear, concise explanation of the invalidation. A make-up sample should be collected on the next PM₁₀/SSI sampling date if possible, but at least prior to the next Model 924 sampling date.

1. Filter Contamination – Filters or sorbent tubes which are dropped or become contaminated with any foreign matter (i.e. dirt, finger marks, ink, liquids, etc.) are invalid.
2. Damaged or Torn Sample Media – Filters or sorbent tubes with tears, pinholes or damage which occurred before, during or after sampling are invalid.

3. Sample Flow Rate

- a. If average flow rate, as printed on the Xontech 924 printout is less than 9.0 LPM for the high flow channels or .600 LPM for the low flow channel, the sample is invalid.
- b. If average flow rate, as printed on the Xontech 924 printout, exceeds 14.0 LPM for high flow channels or .800 LPM for the low flow channel, the sample is invalid.
- c. If start and stop flow rates, as printed on the Xontech 924 printout, differ by more than $\pm 10\%$, the sample is invalid.
- d. If the total time of the sample, as printed on the Xontech 924 printout, exceeds 1440 ± 60 minutes, the sample is invalid.
- e. If the sample start time, as printed on the Xontech 924 printout, begins before 23:30 or ends after 00:30, the sample is invalid

5.4 Shipping Sample Media to Laboratory:

1. In the Control Module, advance the printer paper with the paper feed switch. Remove the automatic printout for the specific sample. Check the printout for start and stop times, start, stop and average flow rates, volume and power failures.
2. Package the printout with the sample media in the proper mailer. Complete the Laboratory Toxics Data Sheet. Include site name, operator name, type of sample, type of analysis, air sampler ID and date shipped. Ship media to the laboratory.
3. If the sample is invalid for any reason, then the run should be repeated on the next scheduled one-in-six sampling day , if practical.
4. Login the appropriate data onto the Sampling Log for Toxics. This log sheet is to be returned to the AQSB section manager in your area on a monthly basis.

6.0 CALIBRATION INFORMATION

6.1 Calibration Introduction:

This section of the SOP covers the calibration procedures for the Xontech 924 sampler. This document is intended to supplement the manufacturers operating manual and should not be used as a substitute. Read the procedures outlined in this document and examine the user's manual before attempting to calibrate a 924 sampler.

6.2 Calibration Overview:

Calibration of the sampler's mass flow controllers is necessary to establish flow rate traceability of the field measurement to a primary standard via a flowrate transfer standard.

There are three CALIBRATE MENU items for each channel which control the MFC's operation:

'F' is the full scale value of the MFC installed for the channel.

'S' is the slope for that channel.

'I' is the intercept for that channel.

Five data points are required for calibration. The operational set point is used for the third set point. Set points two and four are set at 10% of full scale above and below the operational set point. Set points one and five are set at 20% of full scale above and below the operational set point.

Sample

Set Point	CrIV and Total Metals	Aldehydes
SP 1	$(12 \text{ LPM} - (30 \text{ LPM} \times 20\%))$ = 6 LPM	$(700\text{ccm} - (2000\text{ccm} \times 20\%))$ = 300 ccm
SP 2	$(12\text{LPM} - (30 \text{ LPM} \times 10\%))$ = 9 LPM	$(700\text{ccm} - (2000\text{ccm} \times 10\%))$ = 500 ccm
SP 3	12 LPM	700 ccm
SP 4	$(12 \text{ LPM} + (30 \text{ LPM} \times 10\%))$ = 15 LPM	$(700 + (2000 \times 0.1)) = \mathbf{900 \text{ ccm}}$
SP 5	$(12 + (30 \times 0.2)) = \mathbf{18 \text{ LPM}}$	$(700 + (2000 \times 0.2)) = \mathbf{1100 \text{ ccm}}$

Figure 6.1 Calibration set points

6.3 Calibration Apparatus for Xontech 924:

A certified Flow Transfer Standard (3 lpm and 30 lpm)

A certified pressure and temperature (P/T) standard

Calibration Adapter

Xontech 924 Operators Manual

Calibration worksheet

Laptop PC

Basic set of tools

7.0 CALIBRATION PROCEDURE

7.1 Calibration Procedures:

The 924 sampler requires calibration of the mass flow controllers using a flow transfer standard that has been certified against a primary flow standard. The certification of the transfer standard is referenced to 25C and 760 mm Hg. The 924 is calibrated to standard flow conditions, the calibration does not need to be corrected for altitude or temperature.

1. Remove sample line from filter holder base on channel being calibrated.
2. Remove filter holder base from assembly ring of the channel being calibrated.
3. On control panel, press \Rightarrow to the CALIBRATE MENU.
4. Press **SELECT**. CHANNEL NUMBER will be underlined. Press **SELECT** to change channel number. Channel number will begin flashing. Enter channel number to be calibrated. Press **EXIT**.
5. The FULL SCALE value for the channel chosen will be displayed. If the value is correct, press **EXIT**, otherwise press **SELECT**. The full scale value will begin to flash. Enter the correct value (from ID plate on the mass flow controller) for the displayed channel.
6. Press \Rightarrow to the MANUAL RUN menu. Press **SELECT**. Press \Rightarrow to the channel to be calibrated. Press **SELECT**. OFF will begin to flash. Press \Rightarrow to MAN. Press **EXIT** (The pump should come on.)
7. Press \Rightarrow to the CHn CORRECTED LPM display (where n is the channel number). Press **SELECT**. Press \Rightarrow to SET point. Press **SELECT**.
8. Install calibration adapter into filter holder and re-assemble filter holder. Connect $\frac{1}{4}$ " tube from calibration adapter to flow transfer standard.

NOTE: DO NOT connect or disconnect electrical cable from slider valve assembly with power applied, as this will damage the Xontech Model 924 computer board. As a safety feature, the slider-actuating cam is attached to the shaft of the slider motor with nylon tipped set screw. The set screw will shear off in the event that an obstruction (such as a finger or the flow adapter) becomes lodged between the slider and the inlet port.

9. Enter the normal flow rate for the channel being calibrated(12LPM or .7LPM). Allow the reading to stabilize. Enter flow rate from Xontech 924 display and

transfer standard display into “As Is Check” on calibration sheet. If Xontech 924 flow display is $\geq 5\%$ of true, then continue with multi-point calibration. Otherwise proceed to next channel to be calibrated.

10. Enter first point flow rate and press **EXIT**. Allow the reading to stabilize. Enter set point, Xontech 924 display flow and transfer standard displayed flow on the calibration sheet.
11. Enter each succeeding set point and record flow readings.
12. When final point has been recorded, remove 1/4” tube from flow adapter and cap adapter and do leak check. Note flow rate on calibration sheet.
13. Enter calculated slope and intercept from multi-point calibration into Xontech 924
14. Perform verification procedure as described in section 8.2
15. Remove calibration adapter from filter holder.
16. Press **Exit**. Press \Rightarrow to MANUAL RUN menu. \Rightarrow to channel under calibration. Press **SELECT**. Press \Leftarrow to OFF. Press **EXIT**.

8.0 **Verification Procedure**

8.1 **Verification Introduction:**

A verification flow check is required every time a multi-point calibration is performed. The verification flow check compares the standard flow rate calculated from the flow transfer standard with the flow rate display of the 924. The verification flow check must be +/- 5% of true flow as measured by flow transfer standard.

8.2 **Verification Procedures:**

1. On the control panel, press \Rightarrow to the MANUAL RUN menu. Press SELECT. Press \Rightarrow to the channel to be verified. Press SELECT. OFF will begin to flash. Press \Rightarrow to MAN. Press EXIT.
2. Press \Rightarrow to the CH n Corrected LPM display (where n is the channel number being verified). Press SELECT. Press \Rightarrow to SET point. Press SELECT. Enter the desired flow rate for the channel being verified (12 LPM for high flow channels and .700 LPM for low flow channels).
3. Compare indicated flow on control panel with corrected flow on transfer standard. The deviation must be less than 5% from true. Otherwise, the multi-point calibration must be performed again.

Deviation in percent equals the Flow rate as read on Flow Transfer Standard minus the flow rate as read on the Xontech 924 flow display divided by the flow rate as read on the flow transfer standard times 100.

$$\% \text{Deviation} = \frac{Q_{\text{actual}} - Q_{\text{observed}}}{Q_{\text{actual}}} * 100$$

9.0 LEAK CHECK

9.1 Leak Check:

Use this procedure for the Quarterly leak check.

1. Remove sample line from filter holder base on channel being checked.
2. Remove filter holder base from assembly ring of the channel being checked.
3. Install calibration adapter into filter holder and re-assemble filter holder.
4. Cap Adapter.
5. Note flow rate on Xontech 924 readout. (Must be less than 2% of Full Scale)
2% of 30 LPM = .6 LPM
2% of 2 LPM = .04 LPM or 40 CCM
6. Remove calibration adapter from filter holder.

10.0 ROUTINE SERVICE CHECKS

10.1 General Information:

Perform the following routine service checks using the attached schedule and the procedures documented below. Checks may be performed more frequently but should be performed no less than the prescribed intervals. The Model 924 Quality Control Check Sheet should be completed when the samples are changed and forwarded monthly to the appropriate Air Monitoring Section.

10.2 Each Run:

1. Record sample data from printout.
2. Check o-rings and gaskets for placement, resiliency and damage.
3. Inspect the printer paper to ensure that enough paper remains on the roll to print the reports. Inspect printer output. Replace printer ribbon if print is not clear and distinct.

10.3 Monthly Checks:

1. Check system time. The system clock must be set to Pacific Standard Time (PST) \pm 2 minutes.
2. Check pressure on vacuum manifold. Vacuum should be greater than 25 in/Hg.
3. Inspect tubing and power cords for loose connections, kinks, cracks or other defects. Repair or replace parts as necessary.

10.4 Quarterly Checks:

1. Clean Control Box Filter.
2. Clean Inside Control and Pump Boxes.
3. Clean Control and Pump Box Exteriors.
4. Perform Leak test on each sampling channel

10.5 Semiannual Checks:

1. Perform multi-point calibration of the operating channels.
2. Change pump intake and exhaust filters.
3. Check Clock and Memory Battery.

10.6 Annual Checks:

1. Replace Pump Vanes.

11.0 MAINTENANCE PROCEDURES

The following table lists the required preventive maintenance tasks and the cycle time for each task (Per RM Environmental Systems Inc. Model 924 Toxic Air Sampler Operation Manual Dated October, 2002).

11.1 Preventive Maintenance Schedule

Maintenance Task	PM Cycle	Operation Manual Reference Section	Page
Change Printer Paper	as required	9.2	37
Change Printer Ribbon	as required	9.3	38
Clean Control Box Filter	3 months	9.4	38
Check Clock & Memory Battery	6 months	9.5	39
Clean Pump Exhaust Filter	500 hrs	9.6	39
Replace Pump Vanes	1000 hrs	9.7	39
Clean Control & Pump Boxes	3 months	9.8	40
Clean Inside Pump Box	3 months	9.8.1	40
Clean Inside Control Box	3 months	9.8.2	40
Check Mass Flow Controllers	6 months	6.2	25

Figure 11.1 Preventative Maintenance Schedule Table

Appendix A

AQSB MONTHLY QUALITY CONTROL MAINTENANCE CHECK SHEET 801

CALIFORNIA AIR RESOURCES BOARD MONTHLY QUALITY MAINTENANCE CHECK SHEET XONTECH 924TOXICS SAMPLER

Location: _____ Month/Year: _____
Station Number: _____ Technician: _____
Property Number: _____ Agency: _____

	Sample Date	Sample Number	TIME (PST)			FLOW (LPM)			Volume (L)
			Start	Stop	Total	Start	Stop	Avg.	
Total Metal									
Cr+6									
Aldehydes									

	Sample Date	Sample Number	TIME (PST)			FLOW (LPM)			Volume (L)
			Start	Stop	Total	Start	Stop	Avg.	
Total Metal									
Cr+6									
Aldehydes									

	Sample Date	Sample Number	TIME (PST)			FLOW (LPM)			Volume (L)
			Start	Stop	Total	Start	Stop	Avg.	
Total Metal									
Cr+6									
Aldehydes									

OPERATOR INSTRUCTIONS:

- Each Run: Check and record sampling information.
Inspect printer paper and ribbon.
Check rings and gaskets.
- Monthly: Check system time, reset if time off by +/- 2 minutes (PST).
Check pressure on vacuum manifolds. Vacuum should be greater than 25 inHg.
Inspect tubing and power cords for cracks, loose connections or other defects.
- Quarterly: Clean control assembly fan filter, pump assembly, inside control assembly and exterior.
Perform leak test on each sampling channel. Date performed: _____
- Semi-Annual: Calibrate mass flow meters. Date last calibrated: _____

Date	Comments or Maintenance Performed:

Reviewed by: _____ Date: _____

Appendix B

AQSB SAMPLER/INSTRUMENT CALIBRATION REPORT 801

Calibration Report:

ID Information:

Station Name:			Make:	
Site #:			Model #:	
Station Address:			Property #:	
			Site:	
			Log #:	

Calibration Type:	
Calibration Date:	
Report Date:	
Prev. Cal. Date:	

Transfer Standard ID:

Make & Model:	
Prop. #:	
Cert. Date:	
Cert. Exp.:	

Meteorology:

Temp. (Deg. C):	
Atm. Pres. (" Hg):	
Atm. Pres. (mm Hg):	
Elevation (Ft.):	

MFC Serial #'s:

MFC Ch. 1 :	
MFC Ch. 2 :	
MFC Ch. 3 :	

Transfer Standard Certification Equation:

		m :	x :	b :	
0-30, MFC Pos. #:		AF =	0.3194	* Display	+/-
0-3, MFC Pos. #:		AF =	0.0332	* Display	+/-

Calibration Results:

Pollutant:	CH 1	CH 2	CH 3
Instrument Range, LPM:			
Air Flow Rate, SLPM:			
Best Fit Line	Slope:		
	Intercept:		
	Correlation:		
Instrument Leak Check (LPM):			
% Change from Prev. Cal.:			

Pump Vac. ("Hg):	
-------------------------	--

As Is Flow Check for CH. 1:

Set Point:	
Flow Rate LPM:	
Transfer Std.:	
SLPM:	

As Is Flow Check for CH. 2:

Set Point:	
Flow Rate LPM:	
Transfer Std.:	
SLPM:	

As Is Flow Check for CH. 3:

Set Point:	
Flow Rate LPM:	
Transfer Std.:	
SLPM:	

Calibration Data:

Flow Calibration Channel 1:

Xontech 924		Transfer Standard	
Set Point:	Display:	Display:	SLPM (y):
Slope = Intercept = Correlation =			

Verification Flow Ch.1:

Set Point:	
Flow Rate LPM:	
Transfer Std.:	
SLPM:	

Flow Calibration Channel 2:

Xontech 924		Transfer Standard	
Set Point:	Display:	Display:	SLPM (y):
Slope = Intercept = Correlation =			

Verification Flow Ch.2:

Set Point:	
Flow Rate LPM:	
Transfer Std.:	
SLPM:	

Flow Calibration Channel 3:

Xontech 924		Transfer Standard	
Set Point:	Display:	Display:	SLPM (y):
Slope = Intercept = Correlation =			

Verification Flow Ch.3:

Set Point:	
Flow Rate LPM:	
Transfer Std.:	
SLPM:	

Comments:			
Calibrated by:			Checked by:

Appendix C

AQSB XONTECH 924 TOXICS DATA SHEET

[Place data sheet inside shipment box. Questions? For Total Metals call 322-1778, for Chromium 6+ call 324-7688, for Aldehydes call 324-1970.]

CALIFORNIA AIR RESOURCES BOARD XonTech 924 Toxics Data Sheet

Site Name: _____ Site Number: _____

Station Operator: _____ Sampling Date: _____

	Run Date	TIME (PST)			FLOW (LPM)			Volume (L)
		Start	Stop	Total (mins)	Start	Stop	Average	
Total Metals (T)								
Chromium 6+ (C)								
Aldehydes (A)								

Type of Sample: ☐ Regular ☐ Collocated ☐ Trip Blank ☐ Make-up

Air Sample ID Number: _____ Date Shipped from field: _____

Sampling Conditions: ☐ No Unusual Conditions ☐ Farm Operation Nearby ☐ Rain
☐ Wind-Blown Sand/Dust ☐ Fire Nearby ☐ Unknown
☐ Construction Nearby ☐ Other _____

[] INVALID SAMPLE INFORMATION	
Reason for Sample Invalidation:	Status of Make-up Sample:
T C A <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Low flow rate (<10% of set point) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> High flow rate (>10% of set point) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Flow rate varies >10% of set point <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Sampling period out of range (<23 or > 25 hours) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Sampling equipment inoperative <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Damaged sampling media <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Lab unable to provide sample media <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Other reasons: _____	<input type="checkbox"/> Will run make-up on: _____ <input type="checkbox"/> Unable to run make-up, equipment needs repair/replacement/calibration, notified Supervisor <input type="checkbox"/> Lab unable to provide sample media

Field Comments: _____

==== FOR LABORATORY USE ONLY ====

Shipped to
Field by: _____ Date: _____ Time: _____

Received
in Lab by: _____ Date: _____ Time: _____

Lab Comments: _____ LIMS #: